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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/709,574

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EXAMINER

KARLS, SHAY LYNN

ART UNIT

PAPER NUMBER

3723

MAIL DATE

DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/709,574	Applicant(s) MANFREDI, PAUL A.	
	Examiner Shay L. Karls	Art Unit 3723	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 November 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2-5, 7, 10, 14, 17, 18 and 21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2-5, 7, 10, 14, 17, 18 and 21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 May 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 21 is rejected under 35 U.S.C. 102(b) as being anticipated by Kitamura et al. (USPN 5508879).

Kitamura teaches an apparatus for removing contaminants from a surface. The apparatus comprises a cleaning region configured to receive a wafer during cleaning (320 is capable of receiving a wafer). The apparatus further comprises a conductive rotating cleaning member (1) designed and capable of removing contaminants from a surface of a wafer (col. 3, lines 58-64). There is further an electrically grounded path (element 2 and col. 4, lines 1-13) capable of extending from a wafer through the conductive rotating cleaning member to ground when the apparatus is connected to an electrical ground (col. 2, lines 34-37). While the claim states that the apparatus is used to clean a microelectronics wafer this is a recitation of the intended use of the claimed invention and the recitation must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. Thus since the device of Kitamura teaches the structure that is capable of cleaning a wafer, it meets the claim. Additionally, the wafer is not positively claimed and therefore, since

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Kitamura is capable of cleaning a wafer since the reference comprises all the structural elements of the claim, the limitation regarding the use holds no patentable weight.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2-3, 7, 10, 14, 17, 18 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bahten (USPN 6182323) in view of Hawn (IBM Disclosure Bulletin) as evidenced by Lur et al. (USPN 6743721) and ConductivePlastics.com.

Bahten teaches an apparatus for removing contaminants from a surface of a wafer. The apparatus comprises a wafer-cleaning region (figure 4) configured to receive a wafer during cleaning. The apparatus further comprises a wafer-cleaning member (402-405) designed to remove contaminants from a surface of the wafer (abstract).

With regards to claim 2, the cleaning member is a brush having a non-filamentous surface (made from polyurethane foam).

With regards to claim 3, the brush comprises an electrically conductive material (polyurethane foam is considered a conductive material as evidenced by conductiveplastics.com).

With regards to claim 7, the brush roller is made from foam cleaning portion (abstract).

With regards to claim 10, the method of removing contaminants from a surface of a wafer comprises the steps of cleaning the surface with a cleaning member (402-405).

With regards to claim 14, the method further comprises contacting the surface with an electrically conductive brush having a non-filamentous cleaning surface (made from foam).

With regards to claim 17, there is a system for removing contaminants from a surface of a wafer comprising a wafer-cleaning region (figure 4) configured to receive a wafer during cleaning. There is additionally a cleaning member configured to remove contaminants from the surface (402-405).

With regards to claim 18, the cleaning member further comprises a non-filamentous cleaning surface (made from foam).

Bahten teaches all the essential elements of the claimed invention however fails to teach electrically grounding the apparatus (claims 10, 17 and 21). Hawn teaches a means for discharging unwanted potentials on a dielectric surface. The reference teaches grounding a conductive brush which contacts the dielectric surface and as evidenced by Lur, a wafer comprises dielectric surfaces and silicon surfaces (col. 1, lines 42-46). Thus Hawn's device could be used to discharge the dielectric surface of a wafer. It would have been obvious to one of ordinary skill in the art at the time the invention was made to electrically ground Bahten's brush which is made from an electrically conductive foam as taught by Hawn. Grounding the brush will allow the brush to remove unwanted electrostatic charges the wafer without damaging the wafer.

Claims 4-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bahten (USPN 6182323) in view of Hawn (IBM Disclosure Bulletin) as evidenced by Lur (USPN

6743721) and ConductivePlastics.com as applied to claim 3 above and further in view of Kitamura ('879).

Bahten in view of Hawn and Lur teach all the essential elements of the claimed invention however fail to teach that the brush comprises a polymer filled with an electrically-conductive material. Kitamura teaches a roller having fibers filled with an electrically conductive material (col. 5, lines 27-31 state that the fibers of the roller are made from polypropylene nylon or polyester filled with a conductive material such as carbon). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the brush of Bahten so that the foam is filled with a conductive material such as carbon as taught by Kitamura so that the brush will be capable of effectively removing charges from surface of the wafer and so that the brush will provide an efficient cleaning operation (col. 5, lines 36-42).

Additionally, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use perfluororalkoxyalkane as the polymer for the brush, since it has been held within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious engineering choice. *In re Leshin*, 125 USPQ 416.

Response to Arguments

Applicant's arguments filed 11/21/07 have been fully considered but they are not persuasive.

The applicant further argues that Kitamura is not capable of being used to clean a microelectronics wafer. The applicant claims the structural elements of the device with regards to a wafer however the wafer itself is not positively claimed in claim 21. Since there is no

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positive recitation of a wafer in the claim, the structural elements are not required to be used for a wafer cleaning device but only need to be *capable of* being used as a wafer cleaning device.

As stated above, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. Therefore since Kitamura teaches all the structural elements of the claim including a conductive rotating cleaning member to contact a surface during cleaning to remove contaminants from the surface during cleaning, the reference reads on the claim. Even though the applicant states that Kitamura would not be capable of cleaning a wafer because the reference does not have the physical features of a microelectronics wafer cleaning apparatus, Kitamura teaches all the structural elements as claimed and it is suggested to the applicant to amend to claim to include these “physical features” of a wafer cleaning apparatus that Kitamura fails to teach.

The applicant further argues the rotating wafer-cleaning member is not in a location suitable for cleaning a microelectronics wafer. It is noted that regardless of the location of the brush, it would still be capable of cleaning a wafer. Further, since Kitamura teaches multiple locations for the brush, it is obvious that the location of the brush could be altered to better receive and clean the wafer as determined by one of skill in the art.

The applicant also argues that the foam material of Bahten is made from either PVA or polyurethane and these types of foam materials are insulators and not conductors. In response, it is evidence by conductiveplastics.com that polyurethane foam can be a conductive material that

is well known for its cleanliness. Thus it is obvious that the foam used by Bahten could be a conductive foam since it is made from polyurethane and has low levels of impurities.

For the reasons listed above, the rejections are being maintained.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shay L. Karls whose telephone number is 571-272-1268. The examiner can normally be reached on 7:00-4:30 M-Th, alternating F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Hail can be reached on 571-272-4485. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Shay L Karls/
Primary Examiner, Art Unit 3723